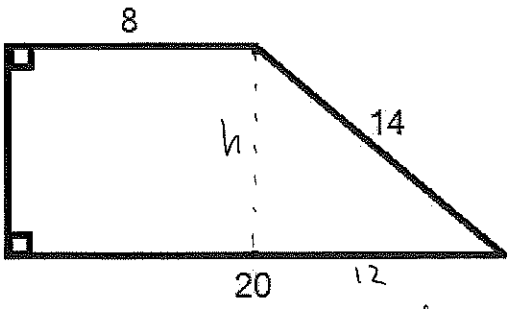
Name: Key Block:

Intro to Geometry 3 - Area of Complex Shapes

Calculate the areas of the following shapes. You may have to be creative!



$h^2 + 12^2 = 14^2$

$h^2 + 144 = 196$

$h^2 = 52$

$h \doteq 7.21$

$A_{\square} = l \cdot w$

$\doteq 8 \cdot 7.21$

$\doteq 57.68$

$A_{\triangle} = \frac{1}{2}bh$

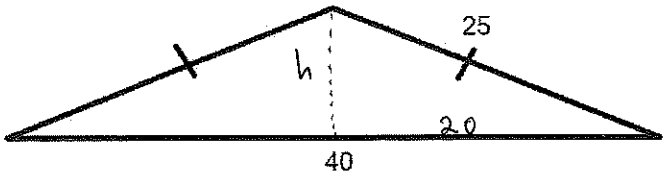
$\doteq \frac{1}{2}(12)(7.21)$

$\doteq 43.26$

$A_{total} = A_{\square} + A_{\triangle}$

$\doteq 57.68 + 43.26$

$\doteq 100.94$



$h^2 + 20^2 = 25^2$

$h^2 + 400 = 625$

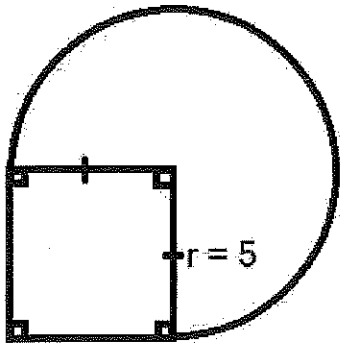
$h^2 = 225$

$h = 15$

$A_{\triangle} = \frac{1}{2}bh$

$= \frac{1}{2}(40)(15)$

$= 300$



$A_{\square} = 5^2$

$= 25$

is $\frac{3}{4}$ circle

$A_{\text{D}} = \frac{3}{4}(\pi r^2)$

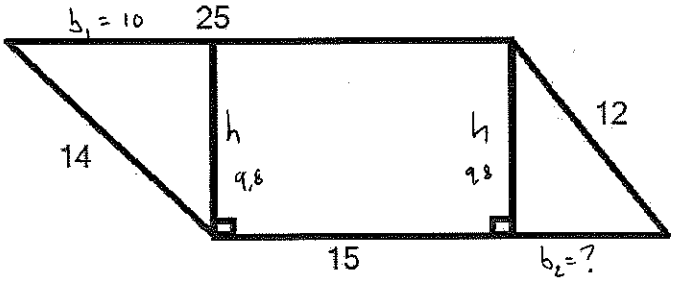
$= \frac{3}{4}\pi(5)^2$

$\doteq 58.9$

$A_{total} = A_{\square} + A_{\text{D}}$

$\doteq 25 + 58.9$

$\doteq 83.9$



$h^2 + 10^2 = 14^2$

$h^2 + 100 = 196$

$h^2 = 96$

$h \doteq 9.8$

$b_2^2 + h^2 = 12^2$

$b_2^2 + (9.8)^2 = 12^2$

$b_2^2 + 96 = 144$

$b_2^2 = 48$

$b_2 \doteq 6.92$

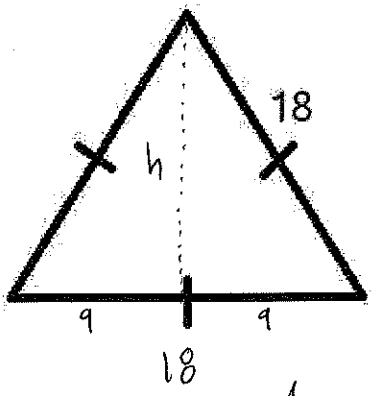
$A_{total} = A_{\triangledown} + A_{\square} + A_{\triangle}$

$= \frac{1}{2}b_1 h + l \cdot h + \frac{1}{2}b_2 h$

$\doteq \frac{1}{2}(10)(9.8) + (15)(9.8) + \frac{1}{2}(6.92)(9.8)$

$\doteq 49 + 147 + 32.44$

$\doteq 228.44$



$h^2 + 9^2 = 18^2$

$h^2 + 81 = 324$

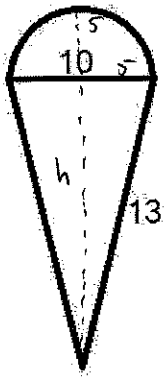
$h^2 = 243$

$h \doteq 15.59$

$A_\triangle = \frac{1}{2}bh$

$\doteq \frac{1}{2}(18)(15.59)$

$\doteq 140.31$



$r = 5 = \frac{1}{2}d$

$\cap$ is half circle.

(hemispherical ice cream)

$h^2 + 5^2 = 13^2$

$h^2 + 25 = 169$

$h^2 = 144$

$h = 12$

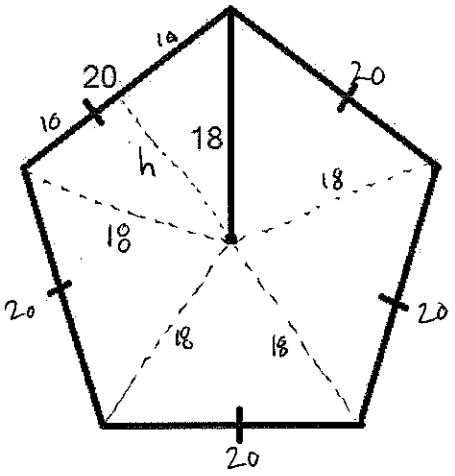
$A_{total} = A_\nabla + A_\cap$

$= \frac{1}{2}bh + \frac{1}{2}\pi r^2$

$= \frac{1}{2}(10)(12) + \frac{1}{2}\pi(5)^2$

$\doteq 60 + 39.27$

$\doteq 99.27$



$10^2 + h^2 = 18^2$

$100 + h^2 = 324$

$h^2 = 224$

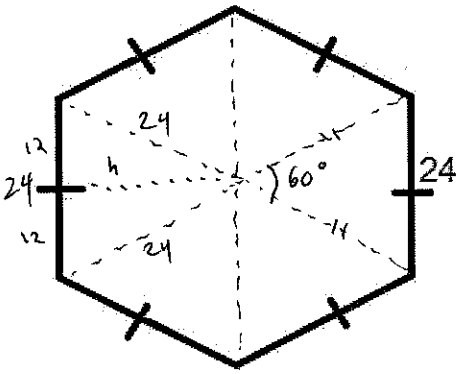
$h \doteq 14.97$

$A_\pentagon = 5A_\triangle$

$= 5\left(\frac{1}{2}bh\right)$

$\doteq 5\left(\frac{1}{2}\right)(20)(14.97)$

$\doteq 748.5$



6 triangles make up the whole shape, so the interior angles are $360° \div 6 = 60°$. ∴ each triangle is equilateral!

$h^2 + 12^2 = 24^2$

$h^2 + 144 = 576$

$h^2 = 432$

$h \doteq 20.78$

$A_\pentagon = 6A_\triangle$

$= 6\left(\frac{1}{2}bh\right)$

$\doteq 6\left(\frac{1}{2}\right)(24)(20.78)$

$\doteq 1496.16$